

Part

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Section 3: Default Strategy for Lands not Assessed through Watershed Analysis

CORRECTED VERSION
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INTERAGENCY
FEDERAL-STATE
AQUATIC
STRATEGY AND MITIGATION
for Timber Harvest & Roads
for the
PACIFIC LUMBER CO. HCP


* Please replace other versions of the January 7 document with this "Corrected Version".

* The information presented below is a result of a January 7,1998 conference call between federal and state technical team members and numerous discussions over the past several months in addition to discussions with Pacific Lumber Company, the August 25, 1997 agency review draft HCP, and an October 17, 1997 cost-benefit analysis.

- This document represents a modification to the August 20,1997 aquatic strategy and mitigation. For ease in locating changes, modifications to the August 20,1997 are delineated in bold; prescriptions that have been replaced are signified with strikethrough except where obvious modifications were made.

Management Zone	Prescription	Related Function/Indicator
Channel Migration Zone (CMZ) • areas where a CMZ is at issue will be mapped for clarity and compliance (i.e. larger streams) - it is assumed all other areas are equivalent to the '97 CFPR permanent vegetation transition zone. * Willows are not to be considered permanent vegetation.	- No harvest - no sanitation salvage or exemption harvest (including emergency harvest exemptions), unless... * loss of life or property [loss of property is defined as a demonstrated high risk of loss of capital, improvements (bridges, roads, culverts, houses, not including vegetation)]; * or other emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and the Implementation Agreement	Bank Stability, LWD protection, Off-channel habitat protection, Channel migration protection, microclimate protection, pools, etc.

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<p><u>CLASS I</u></p> <p>Riparian Management Zone</p> <p>*170' total width on each side of the watercourse</p> <p>* measured slope distance with special provisions for slopes over 50%. (refer to Band #3)</p> <p>measured horizontally (Slope distance may be used if specifics can be developed which are acceptable to protect minor gorges and steep slopes)</p>	<p>1) Restricted Harvest Band Edge of CMZ [0] to 30'</p>	<ul style="list-style-type: none"> - Harvest to enhance and facilitate riparian functions, [only] may be allowed based upon a completed watershed analysis and riparian management plan as agreed upon (both processes) by the permitting agencies - No sanitation/salvage or exemption (including emergency exemption harvest) harvest (as defined and allowed in the '97 CFPR's) except for emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and the Implementation Agreement - EEZ - existing haul roads and stream crossings must be storm proofed - roads within Band #1 must be mitigated as follow: <ul style="list-style-type: none"> - extend Band #1 (Restricted Harvest Band) on the opposite side of the watercourse as the existing road an equivalent distance of the road prism (width fill, etc.) - full-suspension cable skyline yarding only, through Band #1; situations where skyline yarding is not possible will be identified in the HCP, biological opinion and IA - trees damaged in the cable yarding corridors must be retained in place ●  extreme, very high or high landslide hazard zones, the Hillslope Management-Mass Wasting process applies. - a minimum prescription for these areas is that described for each specific Band #1,2 or 3, respectively. 	<p>Bank Stability, LWD protection and recruitment, temperature, sediment filtration, microclimate, soil compaction</p>
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* this watercourse as defined in the '97 FPR's will be further defined for clarity and consistency

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	<p>2) Limited Entry Band 30' to 100'</p> <p>- prescriptions apply to each side of the watercourse</p> <p>* indicates prescriptions that apply to the entire 0-100' width (i.e. Band #1 and #2)</p> <p>-</p>	<p>PalCo's Late Seral, High Residual Prescription</p> <ul style="list-style-type: none"> - single tree selection - minimum 345 sq ft preharvest conifer basal area per acre of Band #2 RMZ, each side - minimum 300 sq ft post harvest conifer basal area per acre of Band #2 RMZ, each side - basal area measurements will be made for conformance no less than every 200' lineal segment of RMZ as per the CFPR's 916.4(b)(2) - no more than 40% of the conifer basal area may be harvested in a single entry - tree sizes and quantity distribution retained as per HCP Appendix 14 (Aug 25, '97) [if replacement size classes must be used to obtain the stated size distributions, the replacement size class must come from the next higher class] - trees fulfilling the size and quantity distribution for 36-42" and 42-48" dbh classes shall be permanently marked; if during entry a tree of the same dbh not marked is in a location (e.g. leaning, closer to watercourse, etc.) or of condition (e.g. decadent, wilty, etc) more desirable for LWD than the originally marked tree, the permanent marks may be moved to the more desirable tree - retain a minimum post harvest average 70% conifer canopy [once demonstrated that harvest methods result in 70% canopy consistently, this element may be dropped] - only 1 entry allowed per cutting cycle [minimum 50 year cutting cycle as per PalCo's models] - maximum 1 entry per 20 years <ul style="list-style-type: none"> - No sanitation salvage or exemption (including emergency exemptions) harvest (as d&al in '97 - CFPR's) except for emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and IA - EEZ - Roads inside Band #2 (limited entry band) must be storm proofed in addition to application of all other management prescriptions (i.e. include road width in calculations of canopy, basal area, etc.) - Cable yarding only, high lead minimum skyline (full suspension) yarding only through Band #2; situations where full suspension yarding is not possible will be identified in the ACE, biological opinion and IA - trees damaged in the cable yarding corridors must be retained in place 	<p>Bank Stability, LWD protection and recruitment, temperature, sediment filtration, microclimate, soil compaction</p>
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		<p>*2 trees per 100' (approx 9 trees per acre) 10 trees per acre on each side of the watercourse are to be retained greater than 40" dbh, permanently marked [can be counted entirely or partially in Band#1]</p> <p>* retain ALL portions of down wood (i.e. LWD/LOD) except as defined as slash in the Z'Berg-Nejedly Forest Practice Act Article 2, 4525.7 in the '97 CFPR, page 207</p> <p>* no forest chemical use (herbicides, pesticides, and fertilizers)</p> <p>* retain <u>all</u> snags, as per USFWS and CDFG, for wildlife mitigation</p>	
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	<p>3) Outer Band 100' to 170'</p> <p>prescriptions apply to each side of the watercourse</p>	<ul style="list-style-type: none"> - PalCo's late seral prescription - single tree selection - minimum 276 sq ft pre harvest conifer basal area, per 200' linear length acre of RMZ, each side - minimum 240 sq. ft post harvest conifer basal area, per 200' linear length acre of RMZ, each side - no more than 40% of the conifer basal area may be harvested in a single entry - tree sizes and quantity retained as per Appendix 14 in the HCP (Aug 25 '97) [if replacement size classes must be used to obtain the stated size distributions, the replacement size class must come from the next higher class] - basal area measurements will be made for conformance no less than every 200' lineal segment of RMZ as per the CFPR's 916.4(b)(2) - No sanitation salvage or exemption (including emergency exemptions) harvest (as defined in '97 CFPR's) except for emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and IA - EEZ - for slopes <50% portions of downed wood (ie. LWD/LOD) can be removed from Band #3 [if a tree originating in any of the 3 Bands falls, portions in Bands #1 & 2 must be retained onsite in place, but the portions in Band #3 can be removed for slopes <50%.] - for slopes 50% or greater, all down wood (ie. LWD/LOD) must be retained except as defined as slash in the Z' Berg-Nejedly Forest Practice Act Article 2, 4525.7 in the '97 CFPR, page 207 - Cable yarding only, high lead minimum, skyline (full suspension) yarding only through Band #3; situations where skyline yarding is not possible will be identified in the HCP, biological opinion and IA - trees damaged in the cable yarding corridors must be retained in place 50% slope provision: For all slopes over 50% adjacent to the RMZ (slope distance to 170'), the Hillslope Management-Mass Wasting process must be implemented for a distance to the break in slope or to the distance/endpoint determined by the Mass Wasting Team. - for these areas, the Team must provide for potential large wood recruitment to streams in the prescriptions (in addition to slope stability issues). - a minimum prescription for these areas is that described in the Class I Outer Band 	<p>LWD recruitment, temperature, sediment filtration, soil compaction, microclimate, windthrow</p>
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<p><u>CLASS II</u> Riparian Management Zone</p> <p>* measured slope distance distance with special provisions for dopes over 50%.</p> <p>horizontally</p> <p><u>OPTION 1</u> * 130' total width on each side of the watercourse</p> <p><u>OPTION 2</u> * 170' width on each side for perennial watercourses (perennial must be defined. Method for determining perennial will be put forth by NMFS)</p> <p>* 100' width on each side of watercourse for intermittent and ephemeral</p> <p><u>OPTION</u> * 100' width on each side of watercourse</p>	<p>1) Restricted Harvest Band Edge of CMZ</p> <p><u>OPTION 1</u> <u>Redwood -</u> <u>Slopes 50% or greater</u> [0] - 30'</p> <p><u>Douglas Fir</u> [0] - 30'</p> <p>First step- Pre-designate the above areas using timber types.</p> <p><u>OPTION 2</u> <u>Redwood -</u> <u>Slopes 50% or greater</u> [0] - 30'</p> <p><u>Douglas Fir</u> [0] - 30'</p> <p>* based on dominant % timber types along RMZ per planning watershed, to be mapped</p> <p><u>OPTION</u> [0] - 30' all timber types and slopes</p>	<p><u>ALL WAA's, except Humboldt - OPTION 1</u></p> <p><u>HUMBOLDT WAA's - OPTION 3</u></p> <p>. monitoring, method to be agreed upon by FWS, CDFG & PalCo, must be conducted to determine if Class II protection is adequate for amphibians; information resulting from monitoring may warrant different (increase or decrease) protection of Class II streams on localized scale (eg. WAA's)</p> <ul style="list-style-type: none"> - Harvest to enhance and facilitate riparian functions, [only] may be allowed based upon a completed watershed analysis and riparian management plan as agreed upon (both processes) by the permitting agencies - No sanitation salvage or exemption (including emergency exemptions) harvest (as defined and allowed in the '97 CFPR's) except for emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and IA - EEZ - existing haul roads and stream crossings must be storm proofed - roads within Band #1 must be mitigated as follows: <ul style="list-style-type: none"> - extend Band #1 (Restricted Harvest Band) on the opposite side of the watercourse as the existing road an equivalent distance of the road prism (width, fill, etc.) full suspension cable skyline yarding only, through Band #1; situations where skyline yarding is not possible will be identified in the HCP, biological opinion and IA - trees damaged in the cable yarding corridors must be retained in place - retain ALL portions of down wood (i.e. LWD/LOD) except as defined as slash in the Z' Berg-Nejedly Forest Practice Act Article 2, 4525.7 in the '97 CFPR, page 207 <p>For areas inside the 100' or 130' RMZ that also fall in the extreme, very high or high landslide hazard zones, the Hillslope Management-Mass Wasting process applies.</p> <ul style="list-style-type: none"> - a minimum prescription for these areas is that described for each specific Band #1 or #2 respectively. 	<p>Bank Stability, LWD protection and recruitment, temperature, sediment filtration, microclimate , soil compaction</p>
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	<p>2) Selective Entry Band</p> <p><u>Option 1</u> [0] or 30' to 130'</p> <p>Option 2 200' linear length [0] or 30' to 100' and 170'</p> <p><u>Option</u> 30' to 100</p> <p>- prescriptions apply to each side of the watercourse</p> <p>• prescriptions that can apply to the entire width (i.e. Band #1 and #2)</p>	<p><u>ALL WAA's, except Humboldt - OPTION 1</u></p> <p><u>HUMBOLDT WAA - OPTION 3</u></p> <ul style="list-style-type: none"> - PalCo later seral prescription - single tree selection - minimum 276 sq ft pre harvest conifer basal area, per length acre of RMZ, each side - minimum 240 sq. Ft Past harvest conifer basal area, per 200' linear length acre of RMZ, each side - no more than 40% of the conifer basal area may be harvested in a single entry - tree sizes and quantity distribution retained as per HCP Appendix 14 (Aug 25 '97) [if replacement size classes must be used to obtain the stated size distributions, the replacement size class must come from the next higher class] - basal area measurements will be made for conformance no less than every 200' lineal segment of RMZ as per the CFPR's 916.4(b)(2) - retain a minimum post harvest average 70% conifer canopy [once demonstrated that harvest methods result in 70% canopy consistently, this element may be dropped] - only 1 entry allowed per cutting cycle [minimum 50 year cutting cycle as per PalCo's models] - maximum 1 entry per 20 years - No sanitation salvage or exemption (including emergency exemptions) harvest (as defined in '97 CFPR's) except for emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and IA - EEZ - Roads inside Band #2 (limited entry band) must be storm proofed in addition to application of all other management prescriptions (i.e. include road width in calculations of canopy, basal area, etc.) - Cable yarding only, high lead minimum, skyline (full suspension) yarding only, full suspension preferred through Band #2; situations where skyline yarding is not possible will be identified in the HCP, biological opinion and IA - trees damaged in the cable yarding corridors must be retained in place <p>* retain ALL portions of down wood (i.e. LWD/LOD) except as defined as slash in the Z' Berg-Nejedly Forest Practice Act Article 2, 4525.7 in the '97 CFPR, page 207</p> <p>* no forest chemical use (herbicides, pesticides, fertilizers)</p>	<p>Bank Stability. LWD protection and recruitment, temperature, sediment filtration, microclimate, soil compaction</p>
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	Slope 30% SO A	<ul style="list-style-type: none"> - 50' ELZ - No fire ignited in zone - Stabilize skid trails as per the '97 FPR's ES per an approved THP in accordance with the Class I and II standard - ground based equipment in the ELZ is acceptable if less resource damage will occur by operating in the ELZ, as per ml approved THP - where the above measure applies, all tractor road watercourse crossings must be flagged on the ground prior to preharvest inspection and shown on the THP map in order to be adequately evaluated for the potential to generate sediment - no removal of down wood in the channel - no removal of any portion of down wood within ELZ except for emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and IA
	Slope >50%	<ul style="list-style-type: none"> - 100' EEZ (Equipment Exclusion Zone) - no fire ignited in EEZ. - ground based equipment in the EEZ is acceptable if less resource damage will occur by operating in the EEZ, as per an approved THP - where the above measure applies, all tractor road watercourse crossings must be flagged on the ground prior to preharvest inspection and shown on the THP map in order to be adequately evaluated for the potential to generate sediment - no removal of down wood in the channel - no removal of any portion of down wood within EEZ except for emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and IA

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<u>ROAD NETWORK</u>	Assessment of existing road network and sediment sources	<ul style="list-style-type: none"> - Complete watershed analysis and road inventory according to PWA protocols on a planning watershed basis within prioritized hydrologic units and schedule listed below: <u>Decade #1:</u> Freshwater Creek, Lawrence Creek, Yager Creek (including Lower, N.F., Middle, S.F.) <u>Decade #2:</u> Juen, Middle Eel <u>Larabee/:</u> Sequoia, Mattole, Salmon, Bear. - For THPs outside of priority areas, sediment source assessments must be complete on a planning watershed scale. 	Sediment control
	Restoration of sediment delivery sites for non-THP related roads	<ul style="list-style-type: none"> - Based an watershed analysis, complete recommended work on high and medium risk sites, on a planning watershed basis, within the prioritized hydrologic units and schedule listed above. 	Sediment Control
	Storm-proofing or upgrading THP related roads	<ul style="list-style-type: none"> - All THP related roads and landings shall comply with specifications described in Handbook for Forest and Ranch Roads (Weaver 1994) and result in sufficient sediment reduction to offset sediment production from current projects until which time a completed watershed analysis results in the identification and completed work on high and medium risk sites, on a planning watershed basis or the watershed analysis indicates that sediment is not a problem. 	

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	Construction of new mads	<p>New roads and landings shall comply, at a minimum, with specifications described in Handbook for Forest and Ranch Roads (Weaver 1994) including but not limited to the following:</p> <ul style="list-style-type: none"> - Roads shall be constructed as single-lane with periodic turnouts (mad width generally 12 to 14 feet). - Roads shall be constructed primarily on slopes under 50%. - Roads shall be located outside riparian management zones, except for RMZ crossings, which shall be minimized - Roads shall be constructed by outsloping, or maintained with rolling dips (or ditched roads maintained by well-spaced ditch relief system) - Avoid construction of roads in high risk situations (e.g., inner gorges¹, road alignments crossing unstable terrain, alignments crossing slopes greater than 50 percent, or degraded watersheds²²) unless potential roads and specifications are evaluated by a Certified Engineering Geologist (CEG) and submitted to the agencies with the THP for review in advance of THP pre-harvest inspection. - No road or landing construction or reconstruction during the winter period or any other time of the year during any of the following conditions: <ol style="list-style-type: none"> a. During periods of measurable rainfall b. Following any rainfall of one-quarter inch or greater, there shall be a minimum of 48 hours of no measurable rainfall prior to resumption of work activities. - Landowner shall be responsible for all road construction and maintenance. 	
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¹An inner gorge is defined as that area of watercourse bank situated immediately adjacent to the watercourse channel, having a side slope of generally over 65% and being situated below the first break in slope above the watercourse channel (Bedrossian 1983).

Watershed condition should be evaluated according to the categories listed in Technical Rule Addendum #2.

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	Maintenance and Use of existing roads	<ul style="list-style-type: none"> - Other than at watercourse crossings or crossing approaches, permanent roads utilized in riparian management zones shall be treated by rocking, chip sealing or paving to help prevent loss of road surface material. - Roads which utilize an inside ditch shall have ditch relief culverts spaced no greater than the specifications listed in Handbook for Forest and Ranch Road (Weaver 1994). - When culverts are proposed for Class I fish bearing or restorable watercourses, the RPP shall be required to demonstrate that the CMP will have an adequate number of days in an average year that adequate fish passage can be expected (i.e., water depth and velocity will meet fish passage requirements). These calculations are to be based on a regional flow duration curve. An example is available from CDF for a proposed crossing in the Soquel Creek watershed located near Santa Cruz, California. - Roads where storm proofing is not yet complete: Road uses shall cease after precipitation is sufficient to generate overland flow off the road or capable of leaving the road if entrapped. Roads use for hauling shall not resume until 48 hours without any precipitation or until the road surface is dry³ - Roads where storm proofing has been completed: Road use shall cease when it displaces road fines in amounts that cause a visible increase in inboard ditches which drain directly into a Class I, II or III; or a visible increase in a Class I, II, and M stream. 	
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³ A wet road is that which the road moisture is higher than found during normal watering (dust abatement) treatments.

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	Monitoring Road Network	<p>- All THP roads, including drainage facilities and landings, will be inspected annually for 5 years after operations as a minimum.</p> <p>-All roads and landings that are not being used in conjunction with THPs and other operations (e.g., hauling gravel, quarry operations and others) shall be monitored annually at least once prior to the titer period, to ensure that drainage facilities and structures are in proper condition prior to the onset of this period. Monitor these same roads and landings again at least once during the winter period, in December or January, and preferably, during or after each storm event of precipitation of 1" or greater [due to limited data, the inches of precipitation may be increased with more information] precipitation event of 0.5 inches during a 24-hour period.</p> <p>Roads and landings that cannot be monitored must be decommissioned or abandoned within the agency time-line.</p> <p>-Regardless of time of year, routine corrective work on inside ditches, culvert capacity and outflow, cross drains and water bars should commence as soon as required equipment (ranging from a shovel to an excavator, materials and personnel can be brought to the sites to be treated. Non-routine work such as rocking road surfaces, replacing culverts, and stabilizing fill slopes should be completed two weeks as soon as weather permits after the site is identified (taking into account the size and extent of the work, equipment access and the prevention of further damage by bringing in equipment).</p>	
<u>HYDRO- LOGIC MATURITY</u>		- not an HCP issue, but needs to be addressed in the EIS/EIR	

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<u>HILLSLOPE MANAGE- MENT</u>	Mass Wasting Extreme, Very High and High Landslide Hazard Zones (including Inner Gorges)	<p>Default: No Harvest No new roads</p> <p>Process:</p> <ol style="list-style-type: none"> 1) Apply default prescriptions per THP unless: 2) A team of a professional geologist, forester and at least 1 agency (NMFS, FWS, EPA DFG, CDF, or RWQCB) biologist(s) determines if alternative prescriptions are appropriate and what the prescriptions will entail. <ul style="list-style-type: none"> - prescriptions put forward by the team are required component of the THP's - in the case of unresolved disagreement among the team, the California State Division of Mines and Geology will make the final determination, taking into account the concerns of the other Team members - report must be submitted with THP. <p>- the area of 50,271 acres of "no data" must be accounted for in a hazard rating prior to the final approval of the HCP</p> <p>[Repeat of RMZ information]</p> <ul style="list-style-type: none"> - For mass wasting areas adjacent to Class I or II RMZ's (beyond the 170', 130' and 100', respectively), the Team must provide for potential large wood recruitment to streams in the prescriptions in addition to slope stability. - a minimum prescription for these areas is that described in the Class I Outer Band and Class II Selective Entry Band - For areas inside the 170', 130' or 100' RMZ that also fall in the extreme, very high or high landslide hazard zones, the Hillslope Management-Mass Wasting process applies. <ul style="list-style-type: none"> - a minimum prescription for these areas is that described for each specific Band #1,2 or 3, respectively. 	
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	surface Erosion	<ul style="list-style-type: none"> - treat all sites of exposed mineral soils, caused by forestry activities, within RMZ's, EEZ's, and ELZ's that are equal to or greater than 100 sq ft. - treat all sites less than 100 sq A of exposed mineral soils in RMZ's, EEZ's, and ELZ's that are on hillslopes greater than 30% if the site can deliver fine sediment to the watercourse. - treatments can include revegetation or other erosion control measures including but not limited to seeding and mulching - watercourse crossings in RMZ's, EEZ's and ELZ's shall be treated to prevent sediment delivery. - cable corridors that divert or carry water away from natural drainage patterns or to channelize run-off that reaches watercourses shall have waterbreaks installed at intervals as per skid trail prescriptions by Weaver et al. (1994) 	
<u>BURNING</u>		<ul style="list-style-type: none"> - no mitigation will be required for damage cawed by the actual fire, unless PalCo or its agents are faulted for the fire by CDF - mitigation may be required for fire management, including suppression and rehabilitation efforts if PalCo or its agents are faulted for the fire by CDF - A Fire Management Plan is needed which addresses BMP's need to be developed for managing prescribed burns (including brush piling, fire breaks, ignition techniques, prescriptions for environmental conditions permitting ignition, etc.),. - BMP's are also needed for wildfire suppression and rehabilitation. 	Sediment Control and slope stability
<u>MONITOR- ING & RESEARCH</u>		<ul style="list-style-type: none"> - <u>needs more discussion</u> - a minimum of 1 complete station should be placed in every planning watershed - conceptually stations can be rotated through the ownership so some elements are monitored every other year and others every 5 years 	
<u>ADAPTIVE MANAGE- MENT WITH TRIGGERS</u>		<ul style="list-style-type: none"> - <u>needs to be discussed further</u> - <u>objectives, hypothesis, etc need to be established</u> 	

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